

## Claims

1. A method for repeatedly accessing a body fluid such as blood in an anatomical vessel, comprising:

obtaining an access tube having an access end opposite from an anastomosis end with a conduit extending from the access end to the anastomosis end;

anastomosing the anastomosis end of the access tube to an anatomical vessel at an anastomosis opening such that the access tube extends at an angle from the vessel;

occluding the conduit of the access tube with a fluid occluder;

removing the fluid occluder to provide fluid communication between the lumen of the vessel and the conduit of the access tube.

2. The method of claim 1, wherein the access tube is anastomosed at the anastomosis opening without extending significantly into the lumen of the vessel.

3. The method of claim 1, wherein the step of removing the fluid occluder is done by penetrating a self-sealing port connected to the access tube.

4. The method of claim 1, wherein the fluid occluder comprises a highly viscous fluid.

5. The method of claim 4, wherein the highly viscous fluid is a gel.

6. The method of claim 1, wherein the fluid occluder comprises a fluid of low viscosity.
7. The method of claim 6, wherein the fluid of low viscosity is a saline solution.
8. The method of claim 1, wherein the fluid occluder has a pharmacological substance incorporated therein.
9. The method of claim 1, wherein the step of anastomosing is done by suturing.
10. The method of claim 1, further comprising the step of reoccluding the conduit with a fluid occluder to prevent flow through the conduit.
11. The method of claim 1, wherein the body fluid is blood.
12. The method of claim 11, further comprising the step of providing fluid communication between the conduit of the access tube and a blood treatment device.
13. The method of claim 12, further comprising the step of providing fluid communication between the blood treatment device and a second access tube anastomosed to a second vessel to re-introduce the treated blood.

14. The method of claim 12, further comprising the step of providing fluid communication between the blood treatment device and a second access tube anastomosed to the vessel at another location to re-introduce the treated blood.

15. The method of claim 12, further comprising the step of re-introducing the treated blood back through the access tube conduit.

16. The method of claim 1, wherein the anastomosed access tube extends percutaneously with the access end being extracorporeally positioned.

17. The method of claim 1, wherein the entire access tube is positioned subcutaneously after anastomosis to the vessel has been completed.

18. The method of claim 1, wherein the access tube is closed at the access end.

19. The method of claim 18, wherein the access tube is closed at the access end with an access cap.

20. The method of claim 1, wherein the fluid occluder isolates the non-native materials from contact with the body fluid until access is desired and the fluid occluder is removed.

21. A system for facilitating repeated percutaneous access to a body fluid such as blood in an anatomical vessel, comprising:

a fluid occluder;

an access tube having an access end opposite from an anastomosis end with a conduit extending from the access end to the anastomosis end, wherein the anastomosis end is adapted for attachment to an anatomical vessel at an anastomosis opening such that the access tube extends at an angle from the vessel; and

a port coupled to the access tube, wherein the port is configured to allow the fluid occluder to be inserted into the access tube such that the fluid occluder is in direct contact with the access tube and the access tube becomes occluded at its anastomosis end after a sufficient volume of fluid occluder has been inserted into the access tube to contact the body fluid.

22. The system of claim 21, wherein the fluid occluder comprises a highly viscous fluid.

23. The system of claim 22, wherein the highly viscous fluid is a gel.

24. The system of claim 21, wherein the fluid occluder comprises a fluid of low viscosity.

25. The system of claim 24, wherein the fluid of low viscosity is a saline solution.

26. The system of claim 21, wherein the port is a self-sealing port.

27. The system of claim 21, wherein the access tube is adapted for attachment to the vessel at an anastomosis opening without extending significantly into the vessel lumen.

28. The system of claim 21, further comprising a component of an anastomosis device at the anastomosis end of the access tube.

29. The system of claim 28, wherein the component is an anastomosis ring.

30. The system of claim 21, wherein the access tube is closed at the access end.

31. A system for facilitating repeated percutaneous access to a body fluid such as blood in an anatomical vessel, comprising:

access tube means for accessing an anastomosed vessel, wherein the access tube means has an access end opposite from an anastomosis end with a conduit extending from the access end to the anastomosis end;

fluid occluding means for occluding the access tube means; and

port means for accessing the access tube means, wherein the port means is configured to allow the fluid occluding means to be inserted into the access tube means such that the fluid occluding means is in direct contact with the access tube means and the access tube means becomes occluded at its anastomosis end after a sufficient volume of fluid occluding means has been inserted into the access tube means to contact the body fluid.

32. The system of claim 31, wherein the fluid occluding means has a pharmacological agent incorporated therein.

33. The system of claim 31, wherein the access tube means further comprises first means for facilitating anastomosis of the access tube means to the vessel.

34. The system of claim 33, wherein the access tube means further comprises second means for facilitating anastomosis of the access tube means to the vessel through cooperation with the first means for facilitating anastomosis of the access tube means to the vessel.

35. The system of claim 31, wherein the fluid occluding means comprises a highly viscous fluid.

36. The system of claim 35, wherein the highly viscous fluid is a gel.

37. The system of claim 31, wherein the fluid occluding means comprises a fluid of low viscosity.

38. The system of claim 37, wherein the fluid of low viscosity is a saline solution.

39. The system of claim 31, wherein the port means is self-sealing.

40. The system of claim 31, wherein the access tube means is adapted for attachment to the vessel at an anastomosis opening without extending significantly into the vessel lumen.

41. The system of claim 31, wherein the access tube means is closed at the access end.